CLAIMS:

1. A method of detecting a disease state in a subject, comprising

    (a) obtaining from the subject a sample of cells suspected of being in the disease state;

    (b) detecting the level of expression of A_3 adenosine receptor (A3AR) in said sample cells; and

    (c) comparing the level of said A3AR expression in said cells to a control level, the control level being the level of A3AR expression in normal cells of the same subject, or being a standard reference level for the A3AR expression which is indicative of a normal state; wherein a difference in the level between the control and the sampled cells is indicative of said diseased state.

2. The method of Claim 1, wherein the difference is an increase in the level of the A3AR expression level as compared to the control level.

3. A method according to Claim 2, wherein the disease state is a proliferative-related disease state.

4. The method of Claim 3, wherein said disease is a tumor.

5. The method of Claim 4, wherein the tumor is a solid tumor.

6. The method of Claim 3, wherein the disease is an autoimmune disease.

7. A method for determining the severity of a disease state in a subject comprising:

    (a) obtaining from the subject a sample of cells suspected of being in a disease state;

    (b) detecting the state of expression of A_3 adenosine receptor (A3AR) in said sampled cells; and

    (c) comparing the level of A3AR expression in said cells with a predetermined calibration curve of the level of the A3AR; the values of the calibration curve being correlated to the severity of the disease state, thereby determining the severity of the disease state of the subject.

8. A method according to Claim 7, wherein the disease state is a proliferative disease state.

9. A method according to Claim 8, wherein the disease state is a tumor.

10. A method according to Claim 9, wherein the tumor is a solid tumor.

11. A method according to Claim 8, wherein the disease state is an autoimmune disease.

12. A method according to Claim 1, wherein the A3AR expression level is determined by detecting the level of A3AR protein, or A3AR protein fragment in the sampled cells.

13. A method according to Claim 7, wherein the A3AR expression level is determined by detecting the level of A3AR protein, or A3AR protein fragment in the sampled cells.

14. A method according to Claim 1, wherein the A3AR expression level is determined by detecting the level of A3AR mRNA in the sampled cells.

15. A method according to Claim 7, wherein the A3AR expression level is determined by detecting the level of A3AR mRNA in the sampled cells.

16. A method for determining whether a subject has a high probability of responding to a therapeutic treatment of a disease state by the administration of an A3AR agonist or an A3AR antagonist , the method comprising:

    (a) obtaining from the subject a sample of cells associated with the disease state;

    (b) detecting the level of expression of A_3 adenosine receptor (A3AR) in said sample; and

    (c) comparing the level of said A3AR expression in said cells to a control level, being the level of A3AR expression in normal cells of the subject, or being a standard reference level for the A3AR expression which is indicative of a normal state; wherein a difference in the level between the control and the sampled cells is indicative that the subject has a high

probability of responding to a therapeutic treatment by an A3AR agonist or A3AR antagonist.

17. A method according to Claim 16, wherein the difference in the level is an increase in the level of A3AR expression in the sampled cells as compared to control.

18. A method according to Claim 16, wherein the disease state is cancer.

19. A method according to Claims 18, wherein the disease state is an autoimmune disease.